Value Based Questions

Que 1. Aadya and Nitya planted some trees in a square garden as shown in the Fig. 2, both arguing that they have planted them in a straight line. Find out who is correct? Justify your decision. (N stands for Nitya and A for Aadya)

Sol. Aadya planted the tress at (2, 1), (4, 3) and (6, 5)

Area of the triangle (if any) formed by these points

$$= \frac{1}{2}[2(3-5) + 4(5-1) + 6(1-3)]$$

$$= \frac{1}{2}(-4 + 16 - 12) = 0$$

$\therefore$ Given points are collinear

Nitya planted the trees at (2, 3), (3, 4), (4, 6)

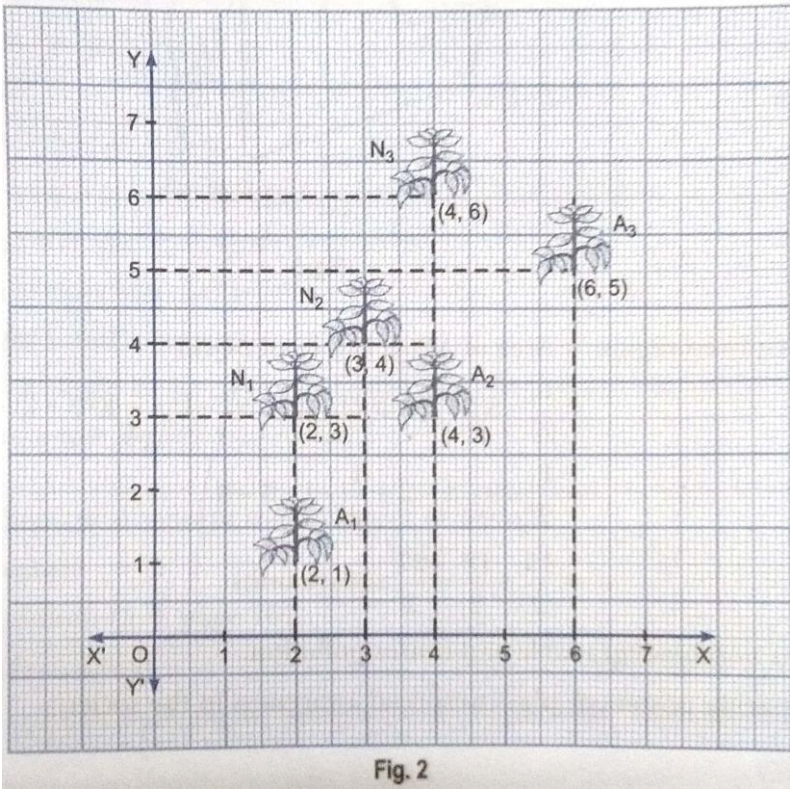

Fig. 2

Area of the triangle (if any) formed by these points = $\frac{1}{2}[2(4-6) + 3(6-3) + 4(3-4)]$

$$= \frac{1}{2}(-4 + 9 - 4) = \frac{1}{2} sq.unit$$

$\therefore$ $Given\ points\ are\ not\ collinear.$

Hence, only Aadya planted the trees in a line.

Plating more trees helps in making the environment clean. So, the two girls are giving healthy surrounding to the society.

Que 2. The students of class X of a school undertook to work for the campaign 'Say No to plastic' in a city. They took the map of the city and form coordinate

plane on it to divide their areas. Group A took the region covered between the coordinates (1, 1), (– 3, 2), (–2, –2) and (1, –3) taken in order. Find the area of the region covered by group A.

(i) What are the harmful effects of using plastic?

(ii) How can you contribute in spreading awareness for such campaign?

Sol. The region covered by group A is divided into the triangles PQS and QRS.

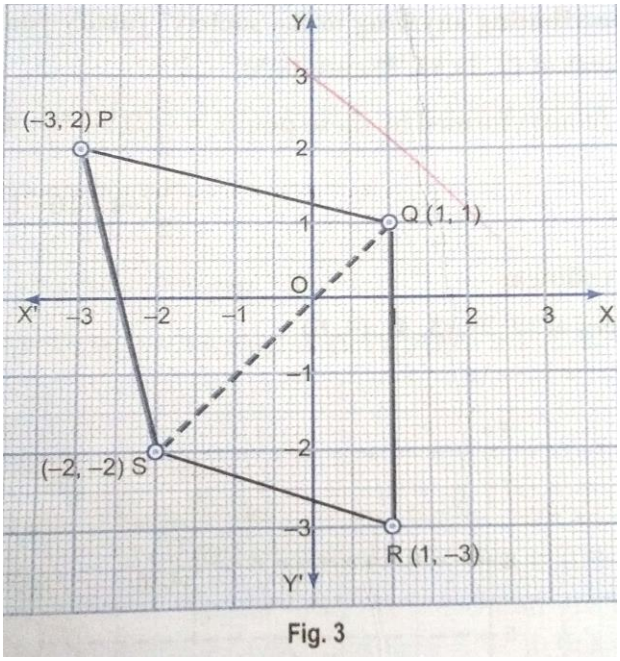

Fig. 3

∴ Area of required region = Area of ΔPQS + Area of ΔPRS

$$= \frac{1}{2}|-3(1+2)+1(-2-2)-2(2-1)| + \frac{1}{2}|1(-3+2)+1(-2-1)+(-2)(1+3)|$$

$$= \frac{1}{2}|-9-4-2| + \frac{1}{2}|-1-3-8|$$

$$= \frac{15}{2} + \frac{12}{2} = \frac{27}{2}\ square\ units$$

(i) Plastic is non-biodegradable and causes pollution.

(ii) By preparing posters or plays to spread awareness in the society.